

Serial No.: 10/812,172

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Attorney Docket No. H0005492-5836/400.318US01

Title: SYSTEM AND METHOD FOR MULTIPLEXING AND TRANSMITTING DC POWER, IMU DATA AND RF DATA ON A SINGLE CABLE

Amendments to the Claims:

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of claims:

1. (Previously Presented) A system for enhancing navigation, comprising:

a processor for receiving and processing radio frequency (RF) position data, inertial measurement unit (IMU), and Inertial Navigation System (INS) data;

a receiver antenna operable to supply the RF position data to the processor;

an IMU, co-located with the receiver antenna, operable to provide the IMU data to the processor; and

a single coaxial cable connected between a first subsystem comprising the processor and a second subsystem comprising the receiver antenna and IMU, the single coaxial cable simultaneously supplying direct current (DC) power to the IMU and transmitting the RF position data and the IMU data to the processor.
2. (Original) The system of claim 1, wherein the RF position data is global position satellite data.
3. (Original) The system of claim 1, wherein the RF position data is Galileo data.

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4. (Original) The system of claim 1, wherein the IMU is a micro electromechanical systems (MEMS) IMU.

5. (Currently Amended) The system of claim 1, further comprising at least one filter operableconfigured to direct the DC power to the IMU but not to the receiver antenna.

6. (Currently Amended) The system of claim 1, further comprising at least one filter operableconfigured to distinguish between the RF position data and the IMU data.

7. (Original) The system of claim 1, wherein the system is mounted on an aircraft.

8. (Original) The system of claim 1, wherein the single coaxial cable passes through an interior portion of a wing of an aircraft.

9. (Currently Amended) A system for powering and receiving data from remote equipment, comprising:

a combination power and data cable in communication, via a filter, with a MEMS IMU and a GPS receiver antenna₁

the filter being operable configured to pass DC power from the combination power and data cable to the MEMS IMU and to preclude DC power from reaching the GPS receiver antenna₂

the filter further ~~being operable~~ configured to pass IMU data generated by the MEMS IMU and received GPS radio frequency energy to the combination power and data cable;~~;~~ and wherein

the power and data cable is in communication with a processor ~~operable~~configured to process the IMU data and GPS radio frequency energy.

10. (Original) The system of claim 9, wherein the MEMS IMU and GPS receiver antenna are co-located.

11. (Original) They system of claim 10, wherein the MEMS IMU and GPS receiver antenna are mounted on a wing of an aircraft.

12. (Original) The system of claim 9, further comprising an aircraft inertial navigation system in communication with the processor.

13. (Original) The system of claim 9, wherein the filter is co-located with the MEMS IMU and GPS receiver antenna.

14. (Currently Amended) The system of claim 9, further comprising at least another filter ~~operable~~configured to distinguish between the IMU data and the received GPS radio frequency energy.

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15. (Original) The system of claim 14, wherein the processor is in communication with the at least another filter and receives the IMU data and the received GPS radio frequency energy via the at least another other filter.

16. (Currently Amended) A system, comprising:

a first subsystem;

a second subsystem; and

a single coaxial cable spanning a distance between the first subsystem and the second subsystem;

the first subsystem, comprising:

a processor for processing both GPS data and MEMS IMU data;

a first filter configured to pass for allowing DC power ~~to pass there through to the single coaxial cable~~; and

a second filter configured to process ~~for processing~~ GPS radio frequency energy and IMU data received from the single coaxial cable;

the second subsystem, comprising:

a MEMS IMU;

a GPS receiver antenna; and

and a third filter configured to send for sending DC power from the single coaxial cable to the MEMS IMU and for passing to send MEMS IMU data and GPS radio frequency energy to the processor through the single coaxial cable.

17. (Original) The system of claim 16, wherein the first subsystem further comprises an aircraft inertial navigation system.

18. (Original) The system of claim 16, wherein the second subsystem is located on an aircraft wing.

19. (Original) The system of claim 16, wherein the GPS receiver antenna and the MEMS IMU are co-located.

20. (New) The system of claim 16, wherein the third filter is further configured to preclude DC power from reaching the GPS receiver antenna.